NOISE, LIGHT, & VIBRATION

The noise, light, and vibration from truck traffic, drilling, well pumps, compressors, and other activities that accompany unconventional oil and gas development (UOGD, or “fracking”) can be disturbing to those living near it. While the majority of noise from a drilling site occurs during the first 50-100 days, a person living in close proximity to a site may experience effects of noise pollution for up to 3 years.

HOW NOISE, LIGHT, AND VIBRATION AFFECT YOU

Research shows that continuous exposure to unnatural noise and light can cause a variety of health problems, including:

- Headache
- High blood pressure
- Increased stress and anxiety
- Hearing impairment
- Sleep disturbances

While more study is needed, the table provides an overview of current research findings from the study of noise levels and UOGD (“fracking”). As you can see, the industrial noise levels in the right-hand column are often louder than what is considered to be safe.

Noise Source	Decibel level (dBA)*	Impact		Examples of noise levels measured near oil and gas sites

Breathing	10	Barely audible		
Whisper; Rustling leaves	20	About twice as loud as 10 dBA		
Quiet room	28-33	About 4 times as loud as 10 dBA		
Lowest limit of urban ambient sound; Typical living room; Forced hot air heating system	40-50	Disturbance of sleep patterns (sleep quality)	45 dBA annual 24 hour average for no interference with indoor activities	New York (2011) 44 to 68 dBA during drilling at 250-2,000 feet
Quiet suburb; Clothes dryer; Printer	50-60	Disturbance of sleep patterns (awakening and mood impacts)	55 dBA annual 24 hour average for no activity interference outdoors	West Virginia (2013) one-hour noise measurements at several of 7 well pads exceeded 55 dBA annual 24 hour average
Conversation in a restaurant; Window Fan on High	60-70	Impacts on school performance		New York (2011) 52 to 75 dBA during well pad construction
Vacuum cleaner	70-80	Ischemic heart disease, hypertension	70 dBA annual 24-hour average lifetime exposure above which hearing loss may occur	Fort Worth (2006) 71-79 dBA drilling noise at 200 feet from well
Freight train at 50 feet; Propeller plane at 1000 feet; Food blender	80-90	Hearing damage possible if exposed for 8 hours or more	90 dBA permissible noise exposure limit for a maximum of 8 hrs per day (OSHA)	New York (2011) 72 to 90 dBA during fracking at 250-2,000 feet

Power mower; Boeing 737 at 6000 feet	90-100	Hearing loss at sustained exposure		Fort Worth (2006) 102 dBA rig generator at 10 feet; New York (2011) up to 102 dBA during fracking at 50-500 feet
Chain saw	120	Pain	115 dBA permissible noise exposure limit for a maximum of 15 min per day (OSHA)	

Source: NRDC

*dBA is an expression of the relative loudness of sounds in air as perceived by the human ear.

WHAT YOU CAN DO

While there is little that can be done to reduce exposure to vibration, you can take steps to reduce noise and light:

- Use earplugs or sound blocking headphones around the house
- Use light-blocking window shades
- Wear eyeshades or a mask when sleeping
- Temporarily rearrange your home so you can sleep in a different space
- Try to avoid dependence on sleeping pills, alcohol, or other medications
- Contact EHP for help**.** Our Family Nurse Practitioner serves the needs of both adults and children whose health may be affected by UOGD ("fracking"). She is available by appointment for both home and office visits and makes referrals to appropriate health specialists on an as needed basis. Please see our Health Issues section for more information.

MEASURING NOISE POLLUTION

According to Environmental Protection Agency (EPA) guidelines, acceptable noise levels are based on the use of the area in question. For example:

- 45 decibels is associated with indoor residential areas, hospitals and schools
- 55 decibels is identified for certain outdoor areas where human activity takes place
- 70 decibels is identified for all areas in order to prevent hearing loss

Though the EPA and other bodies like the World Health Organization (WHO) suggest noise guidelines, they do not have any regulatory authority to enforce noise pollution problems. Instead, noise control is regulated by state and local governments. Consult with your local health or environmental regulatory agency for more information.

One easy way to monitor noise levels from unconventional oil and gas development ("fracking") is to use a sound measurement app on your smartphone**.** EHP recommends SoundMeter+, which is available for iPhones. (For best results, select "A" for waiting on the lower left of screen and "slow response" on the lower right hand screen.) Sound monitoring apps are also available for other types of devices but have not been as rigorously tested. Read a review of sound monitoring apps here.

WANT TO LEARN MORE?

- American Speech-Language-Hearing Association
- American Academy of Audiology
- Earthworks: Oil and Gas Noise
- Glossary of Terms Related to Noise
- Noise Help
- WHO Guideline Values For Community Noise

Nighttime UOGD operations. Photo courtesy of Bob Donnan.

CONTACT EHP TO LEARN MORE!

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